

Appl. S.N. 09/682,157
Amdt. Dated Oct. 21, 2004
Reply to Office Action of July 23, 2004

RD-28,738

REMARKS/ARGUMENTS

This amendment is responsive to the Office Action mailed July 23, 2004 wherein claims 1-4, 7, 8 and 10-15 were rejected under USC §103 (a) on Vining et al. (US 2002/0193687A1) in view of Clark (US 6,142,942). Claims 5, 6 and 9 were deemed allowable if rewritten in independent form including all limitations from any base or intervening claims. In this amendment, no new matter has been added.

Claims 1-15 remain pending in this application. Reconsideration in light of the above amendments and the following remarks is respectfully requested.

Applicants respectfully traverse the rejection of claims 1-15 under 35 USC § 103(a). For a *prima facie* case of obviousness, the Examiner must set forth the differences in the claim over the applied references, set forth the proposed modification of the references that would be necessary to arrive at the claimed subject matter, and explain why the proposed modification would be obvious. Applicants interpret the Office Action as stating that the proposed modification is to combine volume rendering techniques of the Vining reference with the transfer function disclosed in Clark (at col. 15, line 65 through col. 16, line 4). However, the Examiner has merely stated that the motivation for this combination is that both references deal with medical imaging.

Applicants respectfully submit that the Examiner has not been met his burden of establishing a *prima facie* case of obviousness. Firstly, Applicants submit that the Vining and Clark references, taken alone or in any reasonable combination, do not show, disclose or teach all of the claim limitations of Applicants' claimed invention, particularly as recited in independent claims 1, 7 and 12. Secondly, Applicants submit that no reasonable combination, other than hindsight, of the Vining and Clark references would obtain Applicants' claimed invention.

Applicants' independent claims 1, 7 and 12 each recite, among other elements, computing a transfer function range for use in volume rendering three-dimensional data. Nowhere do the applied references show, disclose or teach Applicant's recited computing of a transfer function range for use in volume rendering 3D data.

The Vining reference merely discloses 3D volume rendering techniques, and as stated in the Office Action, the Vining reference does not show or disclose computing a transfer function range for volume rendering the 3D data. Further, nowhere does the Vining reference show or indicate a recognition of the problems associated with or the utility of transfer functions for use with volumetric data.

The Clark reference does not overcome the deficiencies of the Vining reference. The

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Clark reference merely discloses embodiments of an adaptive filter and adaptive filtering methods for use in ultrasound imaging. Applicant has carefully reviewed the entire Clark reference and in particular col. 15, line 65 through col. 16, line 4 as pointed out by the Examiner. The focus of the Clark reference is to optimize the adaptive filtering in ultrasound for achieving negligible side lobes and adequate signal to noise (SNR) ratio, which are both inherent in ultrasound imaging. In particular, the passage indicated above (col. 15- col. 16) discloses computing a Gaussian frequency function for generating an optimal filter transfer function for use as input to the adaptive filter. While the Clark reference uses the term "filter transfer function", the filter transfer function is quite distinct from Applicant's transfer function for use in volume rendering. Nowhere does the Clark reference show or disclose any volume rendering methods or the need for transfer functions for use in volume rendering. Applicant respectfully submits that one skilled in the art of volume rendering would not find an adaptive filtering technique useful in addressing volume rendering problems. Thus, Applicant respectfully submits that the Examiner has failed to provide sufficient motivation for the combination of the applied references. The fact that two references can be combined is insufficient to establish a prima facie case of obviousness. Further, Applicants' submit that Applicants' claims may not be used guidebook in hindsight for combining the applied references. Therefore, Applicants respectfully submit that the Examiner has failed to meet his burden of establishing a prima facie case of obviousness.

Thus, Applicants respectfully submit that independent claims 1, 7 and 12 are patentable over the references cited in the rejection. Dependent claims 2-6, 8-11 and 13-15 which ultimately depend from claims 1, 7 and 12 are patentable for the same reasons. Therefore, Applicants' respectfully submit that claims 1-15 are allowable and requests that the rejections under 35 USC §103 (a) be withdrawn.

Since claims 5, 6 and 9 depend directly or indirection from claims 1 and 7, Applicant respectfully submits that the claims are patentable over the applied references and do not wish to amend them to independent form.


In view of the foregoing amendment and for the reasons set out above, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

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Should the Examiner believe that anything further is needed to place the application in condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number below.

Respectfully submitted,



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